

## CLAIMS

1. A crank for a bicycle comprising an outer shell made of a fiber-reinforced plastic, a first insert member configured and arranged to introduce a load from a pedal shaft, and a second insert member coupled to a bracket spindle and configured and arranged to transmit a load to a sprocket, characterized in that said outer shell comprises at least two fiber-reinforced plastic members at least a part of each of which is molded in advance.
2. The crank for a bicycle according to claim 1, wherein said outer shell is formed by bonding said at least two fiber-reinforced plastic members to each other.
3. The crank for a bicycle according to claim 1, wherein said outer shell is formed by mechanically connecting said at least two fiber-reinforced plastic members to each other.
4. The crank for a bicycle according to any of claims 1 to 3, wherein 50% or more of reinforcing fibers forming said at least two fiber-reinforced plastic members are in a range of 290 to 700 GPa in elastic modulus and in a range of 40 to 70% in fiber volume content ( $V_f$ ).
5. The crank for a bicycle according to any of claims 1 to 4, wherein a formation of reinforcing fibers forming said at least two fiber-reinforced plastic members is a unidirectionally arranged formation of continuous fibers or a woven fabric.
6. The crank for a bicycle according to any of claims 1 to 5, wherein at least a part of said outer shell is covered with a fiber-reinforced plastic layer.
7. The crank for a bicycle according to claim 6, wherein said at least two fiber-reinforced plastic members are connected to each other so that a connection line thereof appeared outside extends in a longitudinal direction of said crank, and at least a part of said connection line is covered with a fiber-reinforced plastic layer.
8. The crank for a bicycle according to claim 7, wherein 50 to 100% of the entire length of said connection line is covered with a fiber-reinforced plastic layer.
9. The crank for a bicycle according to claim 7 or 8, wherein the thickness of said fiber-reinforced plastic layer on said connection line is less than the thickness of each of said at least

two fiber-reinforced plastic members.

10. The crank for a bicycle according to any of claims 7 to 9, wherein 30% or more of reinforcing fibers of said fiber-reinforced plastic layer on said connection line are oriented at an angle of 45 to 135 degrees relative to said connection line.

11. The crank for a bicycle according to any of claims 6 to 10, wherein a formation of reinforcing fibers forming said fiber-reinforced plastic layer is a woven fabric.

12. The crank for a bicycle according to any of claims 1 to 11, wherein at least one of said insert members is formed from a metal, a resin, a fiber-reinforced plastic or a combination thereof.

13. The crank for a bicycle according to claim 12, wherein at least one of said insert members is formed from a combination of an aluminum alloy and a fiber-reinforced plastic.

14. The crank for a bicycle according to claim 12, wherein at least one of said insert members is formed from a heat treated aluminum alloy having a fatigue strength of 10 kgf/mm<sup>2</sup> or more. 15. The crank for a bicycle according to claim 12, wherein at least one of said insert members is formed from an aluminum alloy formed with an oxide skin having a thickness of 3 to 30μm.

16. The crank for a bicycle according to any of claims 1 to 15, wherein at least one of said insert members is bonded directly to all of said fiber-reinforced plastic members.

17. The crank for a bicycle according to any of claims 2, 4 to 16, wherein a Barcol hardness of an adhesive used for said bonding is smaller than that of a matrix resin forming said fiber-reinforced plastic members.

18. A method of producing a crank for a bicycle comprising the steps of:

    premolding a plurality of fiber-reinforced plastic members using a single-faced mold or a double-faced mold; and

    integrating said plurality of fiber-reinforced plastic members premolded.

19. The method of producing a crank for a bicycle according to claim 18, wherein said plurality of fiber-reinforced plastic members molded in said premolding step are integrated as an outer

shell of a first insert member configured and arranged to introduce a load from a pedal shaft and a second insert member coupled to a bracket spindle and configured and arranged to transmit a load to a sprocket.